Remarks

The Examiner has rejected claims 1 and 6 under 35 U.S.C. 103(a) as being unpatentable over Thundar (US6,050,722).

Thundar describes a device for remotely measuring the temperature of an object. Incident light from the object is focused onto a silicon microcantilever with a metal overlay (col 4, lines 44-59). This microcantilever is attached to a piezoelectric crystal (col 8, lines 6-39). An oscillator provides a drive signal to the piezoelectric crystal. The microcantilever then oscillates at a frequency which depends on the incident light from the object. A processor then receives the output and determines the temperature of the object.

In the present application, a piezoelectric film measures the temperature of a recording medium. A controller then inputs power to a medium based on the measured temperature of the medium (claims 1 and 6). The temperature of the medium is thereby raised to a controller value to achieve better recording properties.

There are several noteworthy differences between the invention described by Thundar and the invention described in the present application. First the piezoelectric active element in Thundar is a piezoelectric crystal. A piezoelectric crystal is a rigid material which has a high electrical output generated by a small mechanical stress. A piezoelectric crystal is not known for having an appreciable response to black body radiation. In Thundar, the piezoelectric crystal is used to measure the small vibrations in a microcantilever. In the present application a piezoelectric film is used to directly measure the black body radiation of a

recording medium. A piezoelectric film comprises a thin layer of flexible, piezoactive organic material. Piezoelectric films have a poor efficiency of converting mechanical stress to electrical signals compared with piezoelectric crystals. However, piezoelectric films are much more direct sensitivity to black body radiation than piezoelectric crystals. The use of piezoelectric films is not mentioned in Thundar. Piezoelectric crystals are not interchangeable with piezoelectric films, nor are piezoelectric crystals equivalent in function to piezoelectric films.

The Examiner has quoted from the present application that "The piezoelectric sensor is known to sense black body radiation as mentioned by the Applicant". Applicant respectfully suggests that piezoelectric films (as taught by the present application) are far more sensitive to blackbody radiation than the piezoelectric crystals of Thundar. Furthermore, Applicant respectfully points out that "The references (used when applying a USC 103(a) rejection) must be viewed without the benefit of impermissible hindsight afforded by the claimed invention (MPEP1241)".

Thundar teaches the use of a processor which receives data from the microcantilevers and reports the temperature of a remote object. In the present application, a controller is used which first measures the temperature of a recording medium and then controls the power delivered to the medium in order to raise the temperature to a desired value. In these contexts, a processor merely accepts data and reports a calculated value, whereas a controller controls

input power in response to a measured value. Therefore a controller has a different function compared to a processor.

To summarize, the present application teaches the use of a piezoelectric film to measure the blackbody radiation of a recording medium. Thundar teaches the use of a piezoelectric crystal to measure the vibration frequency of a microcantilever. The present application teaches the use of a controller to measure the temperature of a recording medium and then input power to raise the temperature of the medium to a desired value. Thundar teaches the use of a processor to collect the frequency data from microcantilevers and report the temperature.

In view of the discussion above, Applicants believe that Claims 1 and 6 are in condition of allowance and respectfully request reconsideration and withdrawal of the USC 103(a) rejection relying on Thundar.

Respectfully submitted,

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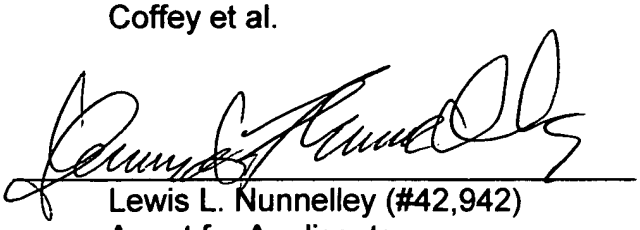
Date: Aug 4, 2004 By: 

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